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the north carolina school of science and mathematics

DIRECTOR'S REPORT to BOARD OF TRUSTEES

December 5, 1980

In preparation for this report I have been reviewing the file of previous reports submitted to you since July 1, 1979 when I assumed the responsibilities as Director of the School. Although seventeen months seems to be a relatively short time, I must confess to a sense of nostalgia even now in recalling that on that date the entire staff consisted of just four of us, our physical resources consisted of a collection of old buildings and a few borrowed desks, but that our mission consisted of giving shape to the most significant idea to appear in American education in many years.

How much has occurred in those months is clearly seen in the following reports from the Deans of the three divisions of the School: Academic Affairs, Student Services, Operations and Institutional Advancement. There is a new life in these old buildings as the staff and students go about the task of creating not only a school but a campus community.

Each Dean will highlight significant points in his or her report during the meeting, so nothing more need be added here except for the Board to know that in back of each of the written reports stands dedicated, hard working professional staff ably directed by these Deans.

But looking back is only productive if it helps us to see and understand the future more clearly, and the future is already approaching in much of the planning now underway. Construction on residence hall space and classroom space for another 150 students is scheduled to start in January, with most of it occurring in the complete renovation of the Valinda Beall Pavilion immediately adjoining the Main Building. The admissions process has been underway for a number of weeks. Advertising for faculty and staff will soon begin.

The site development master plan which was presented to you in detail previously is being organized into a written document.

To assist us in our ongoing organization of office management procedures, I have requested the Department of Administrative Analysis to advise on appropriate use of office space and clerical staff. A team has begun the process of analyzing our needs in this area.

To provide a comprehensive approach to planning I have organized faculty/staff planning committees in the following areas:

1. Admission
2. Curriculum
3. Facilities and Site Development
4. Professional Improvement and Selection
5. Residential Life

These committees will bring recommendations to the Director as their planning goes along.

On December 10 I will attend the first of a series of meetings with public school superintendents as I visit throughout the state to appear on their monthly superintendents council meetings, explaining our program and inviting their questions and comments. I do this through the cooperation of the Department of Public Instruction. It was a productive process last year and promises to be this year as well. The following letter from Mr. Bill Britt of the Department of Public Instruction attests to that.

Finally, I present for your consideration, four proposals on the following topics:

1. A summer program for teachers of science and mathematics. (page 26)

2. Planning for the means to organize outreach, research, and evaluation needs. (page 29)

3. Professional improvement and program development grants for the NCSSM staff. (page 34)

4. The procurement of liability insurance for members of the Board of Trustees and administration. (page 35)

Charles R. Eilber
Director

DEPARTMENT OF PUBLIC INSTRUCTION

STATE OF NORTH CAROLINA
NORTHEAST REGIONAL EDUCATION CENTER
HAYES BUILDING
P. O. BOX 1028
WILLIAMSTON, NORTH CAROLINA 27892
AREA 919 - 792-5166

A. CRAIG PHILLIPS
STATE SUPERINTENDENT

F. L. "BILL" BRITT
DIRECTOR

November 7, 1980

RECEIVED
NOV 10 1980
N.C. School of
Science & Mathematics

Dr. Charles R. Eilber, Director
The North Carolina School of Science and Mathematics
West Club Boulevard and Broad Street
Durham, North Carolina 27705

Dear Chuck:

From all reports I've heard from people in our area, the North Carolina School of Science and Mathematics has gotten off to a very, very good start. I compliment you and your staff for making that possible.

I read the article in Education USA. Thought they did a good job with it. It has been interesting to me, however, that some of our superintendents who were not all that enthused about the creation of the school, had a different reaction after reading Education USA. In fact they expressed pride and ownership! Again I say, you and your staff have done an excellent job.

Chuck, in reference to meeting with the Superintendents Council in each region, I applaud the idea and look forward to your coming to our Council meeting. Normally we do not meet in December. I believe the Council will decide at its November 18 meeting to meet December 16 due to the statewide superintendents meeting in January. I would ask that if your calendar permits, hold December 16 for Northeast Regional Education Center, Williamston and I will confirm immediately after the November meeting, that is if the date is a convenient one for you.

Thanks again for providing the tremendous leadership for our new school and an even bigger thanks for realizing the need to keep superintendents involved and informed.

Sincerely,

Bill

F. L. "Bill" Britt
Director

FLB/mwj

NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

TO: Charles R. Eilber, Director December 5, 1980

FROM: Cecily C. Selby, Dean for Academic Affairs

SUBJECT: Report and Recommendations

1. RECENT AND CURRENT ACTIVITIES

1.1 Facilities

By mid-October classes were able to settle down to a more stable schedule and classroom situation than had been possible during the opening weeks of school. The disruption of routine by painting and construction work in classrooms and halls, and by the excitement and schedule changes of Dedication week made difficulties for all members of the school community. By mid-October biology classes could be held in their permanent 1980-81 classroom/lab but the chemistry and physics lab and classrooms were not available during the period covered by this report. The small dining room and a small math classroom have been used throughout this period for physics and chemistry. Teachers of both subjects have simply had to postpone laboratory work until the labs under construction are made available.[1] The computer lab with three Apple computers, one TRS-80 and four terminals connected with the Triangle Universities Computation Center has been open and fully functional since the opening of school. Music and art classes have been held on the 3rd floor main wing in the space used previously by the hospital's Nursery without any renovation or adaptation. Chorus and wind ensemble have been held in regular classrooms and two pianos have been used in small inside rooms available on the 3rd flood main wing. Teachers have been assigned offices (six teachers sharing three offices, four with their own offices) or use teacher-dedicated classrooms as their offices.

1.2 Instructional Program

Since the final faculty appointments were not made until late in the spring of 1980 there was little or no time for faculty to work together in pooling ideas and experiences to develop new curricula and instructional design. With the exception of American Studies, teachers are all teaching in the manner and with the content with which they are most experienced. Opening a new school with so many unknowns this was considered to be by far the wisest policy. Thus, the curriculum for the first year of operation of the School appears traditional in its structure. (Appendix A)

[1] December 8, 1980

All students were enrolled in American Studies (the equivalent of a full English and a full history course), one foreign language of their choice, one mathematics course (a choice of six depending upon the previous background of students) and one or two of the science offerings in chemistry, advanced biology and physics. Those with the strongest preparation in math and science were placed in either chemistry and biology or physics. Those with weaker backgrounds were strongly recommended to take only chemistry or physics. Students who would be prepared for calculus in their senior year were advised to wait to take physics when they could take physics with calculus. The enrollments in the various courses offered are as follows:

- American Studies (English & History double period)	148 students	4 teachers
- Advanced Biology	84 students	1 teacher
- Physics	63 students	1 teacher
- Chemistry	96 students	1 teacher
- Mathematics		2.25 teachers
Algebra II	26 students	
Algebra II w/ Precalculus	24 students	
Precalculus	52 students	
Precalculus & Calculus	38 students	
Calculus BC	10 students	
Calculus of Several Variables	1 student	
- Language		2.0 teachers
Latin I	30 students	
German I	20 students	
Spanish I & II	18 students	
Spanish III	9 students	
French I	22 students	
French II	25 students	
French III	19 students	
French IV	5 students	
- Art Course	65 students	1 teacher
- Music Course	26 students	1 teacher

Students were left free to choose art and music courses if they felt they would have enough time in their schedule for all their other responsibilities. After the initial period of freedom to add or drop courses with no penalty, student schedules reflected the following:

- Students taking seven courses	24
- Students taking six courses	96
- Students taking five courses	28

In addition every student is required to participate in physical activity two periods per week.

As teachers get to know each other, learn to work together and become adapted to the abilities and interests of the students, modes of teaching are developing that attempt to individualize, facilitate continuous progress and provide interdisciplinary links.

With the experience of the first quarter behind us, the decision to concentrate on developing fundamental skills and subject matter mastery as a primary educational goal is more than justified by experience. The entering students exhibit a wide range of academic backgrounds, experiences and abilities. For the majority of our students there was considerable shock in facing the homework requirements in all subjects, the reading and study skills required by American Studies, the rigorous approach of biology, exposure to students with advanced mathematics backgrounds and the postponement of lab work in chemistry and physics. Much faculty and administrative time was given to advise and counsel with students to facilitate their adjustment. As was said by faculty in an early faculty meeting "We are learning how deprived our gifted students have become in the development of study skills." -- i.e., most had not previously been given challenging homework or reading assignments. With the heavy student loads carried by all teachers and the usual size of class being at least 20 pupils, and with space constraints, individualization of programs has proven difficult. However, teachers have found the following ways already to deal with students needing extra help or the freedom to move at their own pace:

1) Writing: diagostic tests were used to place students in sections adapted to their level of writing skill and grammatical knowledge;
2) Mathematics: computer science is covered in minicourses at various times during the day, evenings and Saturdays. Computers are used in every math course and there is independent study of PASCAL for advanced students. A special section has been set up for Algebra II students with the weakest backgrounds and needing the most help;
3) Language: several ways have been found to permit more advanced students to move ahead and facilitate more class time for those with weaker backgrounds. Extensive use of cassette tapes and recorders facilitates this;
4) An advanced chemistry class has been set up for 12 students who already had taken a year of high school chemistry;
5) A physics with calculus course was designed for the advanced math students;
6) All teachers have scheduled times during the day and one scheduled evening per week during which they are available for individual assistance -- particularly for those with weak academic backgrounds. In math and foreign language, qualified students are regularly engaged in tutoring other students as part of the work service program.

1.3 Student Evaluation and Grading

A sample of the type of faculty and residential advisor evaluations that were sent to parents after the first quarter are attached. Comments on all students in all subjects were shared first with the students through their residential advisor and then mailed to parents. The sample comments indicate the high degree to which faculty incorporated statements of educational goals with their evaluations, thereby reinforcing the goals of the School. (Appendix B)

Grades were not sent home nor recorded in the office or on transcripts for the first quarter. This policy was decided upon to minimize anxiety during the opening weeks, to enable teachers to emphasize qualitative evaluation and competency-based goals and to allow time for teachers to develop grading practices that are fair relative to their colleagues grading scale.

1.4 Mentor Program

Other ways in which individual students' interests and abilities are being met include providing opportunities for some students to participate directly in laboratory work in research laboratories of the Duke Medical Center. Dr. Syd Osterhout has offered NCSSM students these opportunities previously open only to Duke undergraduates. Currently nine students are already working, on a weekly basis, in the laboratories of the following nine research doctors: Dr. Tourian, Wheat, Kamin, Lynn, Bjornsson, Killenberg, Vanaman, Mitchell and Corless. Ross Baker, NCSSM biology instructor, serves as coordinator and is directly in touch with the Duke scientists for evaluation and guidance of student work. Other contacts with Duke are summarized in the attached memo. (Appendix C)

Contact has also been made with the following individuals who have offered opportunities for NCSSM students to develop mentor relationships and pursue research studies in their facilities:

1) Dr. John Graham, UNC School of Medicine, Dept. of Pathology;
2) Dr. Marion Phillips, UNC School of Medicine, Associate Dean;
3) Dr. Joe Grisham, UNC School of Medicine, Chairman of Pathology;
4) Mr. Anthony Jenzano, Director, Morehead Planetarium;
5) Dr. White, Duke University, Department of Botany.

Warm offers of assistance have also been received from mathematics, physics and engineering departments at N. C. State University, although the distance to Raleigh prohibits regular student interaction in laboratories there. The library science school at N. C. Central University has provided assistance in the technical aspects of library services for the School.

1.5 Saturday Projects

On the Saturdays on which students are required to be on campus, an auxiliary program of activities has been initiated. The program for the first three Saturdays available in this quarter is indicated in the attached memo. (Appendix D) Future offerings will be augmented by opportunities for skill-building in photography, electronic shop, shop, pottery and other laboratory skills when the facilities become available. Thus, this program is being used for skill-building and to offer subjects such as philosophy and linguistics which, in the future instructional program, can be the basis of minicourses and electives.

NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Instructional Program
For Eleventh Grade Students
1980-1981 School Year

Sciences

Students are expected to take at least one course in each of the areas of chemistry, physics, and biology during their two years at the School. Each course can be taken in either the eleventh or twelfth grade so that programs can be designed to fit student's backgrounds and interests. Each of the major courses qualifies students to take the Advanced Placement examination in that subject, if the student wishes.

Advanced Placement Biology is a survey of the field of biology. It is taught at the level of an introductory college course. There are four lecture periods and one lab per week. Topics studied can be grouped into the major areas of molecular biology, organismal biology, and population biology. The theory of evolution is the theme which unites the major topics. Students will be encouraged to conduct independent research projects or to work with practicing scientists in the Research Triangle area.

First year chemistry is a survey of the topics covered in the recent high school chemistry texts. A special feature of the course is a well-equipped laboratory which makes significant demonstrations and experiments possible. The classroom time is devoted to development of insight into the modern theories of chemistry. These include the atomic model, molecular structure, chemical thermodynamics, and modern kinetic theory. The classes will participate in a research project while studying chemical rate processes and equilibrium. For example, the iodine clock reaction will be studied and data will be collected to determine the effect of the dielectric constant of the medium on the rate of the reaction. Each class will investigate one aspect of the system and will share the data of the other classes. Personal programming with the TI 58C calculator will be a part of the instruction and these calculators will be used to analyze some of the laboratory data.

The second year chemistry students will use a college level text. The class will be conducted with fewer formal sessions and greater emphasis on independent study. Programmable calculators will be used more frequently than in the first year course. All topics will be treated in a more quantitative way with a greater emphasis on problems with numerical solutions. The broad topic of chemical equilibrium will be covered in much more detail than in the first year classes. Programmable calculators will be used to find exact solutions to some problems that are traditionally solved by approximate methods. The second year course will have a more thorough treatment of electrochemistry, nuclear chemistry, and chemical thermodynamics than is appropriate in the first year course. The Duke University Medical Center has offered selected students the same opportunities as Duke University undergraduates to work as volunteer interns in medical research labs. Some students have elected this activity as enrichment for their advanced chemistry course whereas others have elected such lab internship as an additional activity.

Two levels of introductory physics are offered, tailored to the math preparation of the students. The calculus-based course is more intensive and analytic, using calculus methods to develop appropriate physical principles and apply them to suitable problems. The non-calculus course does introduce students to a few elementary concepts of calculus. The subject matter of both courses begins with a study of motion: kinematics, Newton's laws, conservation laws for energy, momentum and angular momentum, gravitation and oscillations. During this treatment of classical mechanics some relevant concepts of quantum mechanics and relativity are touched briefly. The methods of classical mechanics are used to develop the kinetic theory of gases and we cover the first two laws of thermodynamics. The second semester begins with a study of electrostatics, electric currents and magnetic forces, all leading to the development of waves and optics. The closing topics are taken from modern physics and include the quantization of light, the wave nature of particles, nuclear structure and special relativity.

All sciences have laboratory periods of at least 1 hour 45 minutes per week with additional laboratory time available for independent study. Since all science courses overlap, the teachers team-teach to include consideration of biochemistry, biophysics and physical chemistry in the above courses.

Since laboratory experience with experimental techniques is fundamental to all science, the emphasis for the first semester is on assisting students in developing skills and learning basic concepts in the one of two science courses elected for the eleventh grade. As interest and proficiency develop, special interest groups (mini-courses) will develop around topics (e.g., molecular biology, meteorology) chosen by the students and teachers. Many resources of the Research Triangle are called upon to supplement classroom instruction.

Mathematics

Entering students are placed in one of the following mathematics courses which have been designed to fit the needs of students entering with varying backgrounds in mathematics:

- Algebra II with trigonometry
- Algebra II and pre-calculus
- Pre-calculus
- Pre-calculus and an Introduction to Calculus
- Calculus BC
- Calculus of Several Variables
- Differential Equations

All courses incorporate use of the computer with mini-courses in computer science covering program languages, algorithms, data structure and the uses and impact of computer technology.

Independent study is an integral part of the mathematics program with the computer playing a large part in this component. Topics such as probability and statistics, finite mathematics, numerical methods, linear algebra and programming are likely independent study topics.

In working with the physical, natural and social sciences the School is a leader at the secondary level in the interfacing of laboratory experiments and field work with computer capability.

English and Social Sciences

Every eleventh grade student participates in an American Studies program designed by the English and social sciences teachers presenting American culture through American history, literature, government, economics and the arts. Through team-teaching between teachers specializing in each of these areas, the interrelationships between all scholarly disciplines is demonstrated.

American Studies opens with a focus on the socio-economic and historical aspects of Durham as related to the student's hometown and from there to a study of North Carolina. The course is team-taught by two English and two social science teachers, meeting in groups of 75 or 37/38 for lecture and other presentations and then in groups of 18-20 for discussion. Writing is taught in conjunction with this course and in mini-courses in the following areas: journalism, drama and speech, scientific and business writing, and independent study (creative, poetry, etc.). An important purpose of the written, spoken and visual communication courses is to teach students how to plan and execute presentations of scientific topics and projects.

The curriculum is designed around the following topics:

- Science and Technology in the U. S. (including comparative economic systems)
- Development and Expansion
- Conflict (personal, societal, international)
- Change in Society (how we have addressed it in the past, how we are prepared for the future.)

Instructional techniques include lecture-discussion, fields trips, simulations, group work, use of socio-drama, and independent study. Students deal with various historical interpretations and literature (short story, poetry, novels, drama).

A concluding activity is a major research paper on a related topic of the student's choice incorporating the use of research and writing skills developed during the year.

All students meet together for scheduled American Studies lectures, seminars, and discussions one night per week. This time may also be used for combined art and music students to meet on aesthetics and values.

Foreign Languages and Literature

Each student is expected to take a foreign language. Courses in Spanish, French, Latin and German are designed to meet the interests and entering competencies of the students admitted.

First year language classes emphasize the four basic skills: (1) speaking, (2) listening, (3) reading, and (4) writing. All language courses make use of tape recordings, overhead projections, slides and filmstrips which serve to enhance the student's experience with the language and the culture of its people. Students in the modern languages are encouraged to use their language skills outside the classroom, at language tables during lunch, for instance. Cultural and historical aspects of the people who speak the language under study are the foundation for the program in the four above mentioned skills.

While emphasis on the four basic skills is continued in second year language classes, the student's competency in the language is further increased by (1) reading short texts from literature, (2) oral discussion of material read by the class, (3) greater use of the language in everyday conversational situations, and (4) creative expression in the language which may take the form of written compositions and oral reports.

Third and fourth year language classes facilitate independent study, with the student and instructor choosing some of the material that is to be studied. This may be short stories, novels, dramas, poetry, historical writings, magazine articles, current events (newspapers, etc.), philosophy and scientific articles. Each student gives a report to the class on his/her independent study project. Reading selections of increasing difficulty from literature and culture form the basis for study and group discussions by the class as a whole. Latin students will be introduced to supplementary areas in the field of classical studies such as archaeology, numismatics, paleography, epigraphy, and art history.

Advanced courses also prepare students for Language Achievement tests and Advanced Placement examinations, should they wish to take them.

The Arts

Both the art and music departments offer a three-part program. Formal classroom time is utilized to develop awareness and skill in non-verbal areas of seeing, listening and communication through sight and sound. In art such awareness is developed through a variety of techniques such as line drawing, mechanical drawing, calligraphy, photography, screen-printing, pottery and presentation skills such as presenting experimental results. There is an emphasis on applying visual skills to fields of science and mathematics so that students develop superior communications skills for use in their professional careers.

In the music program the study of theory and music literature are combined through the investigation of structure, form, rhythm, harmony, melody, and expression in various historical periods and styles. The electronic music studio provides the basis for the study of the physics of sound (acoustics) as well as an opportunity for student composition.

In addition, there are offerings in the arts which allow a student to pursue and devleop special interests. In applied music, the wind ensemble, chorus, and jazz ensumble provide experience with large groups, while instrumental and vocal chamber music offer more individualized instruction. Both in art and music there is the opportunity for independent study in areas such as photography, ceramics, print-making, musical composition, and mixed media (video, film, etc.). Certain facilities are also available for more informal use for the enrichment of the residential life program.

Thirdly, the arts instructors participate directly in the classroom activities of all courses, where appropriate, to address such areas as music and art history in American Studies, the use of pigments in chemistry, overtones in physics, symmetry and computer graphics in mathematics, ethnomusicology and folk art in language and literature.

On scheduled Saturday mornings programs and activities are available to enable students to develop proficiency in study, research and technical skills such as photography, video production, electronic shop, music studio, computers, silk-screening, etc.

Summary

The skilled and experienced teachers forming the founding faculty of the North Carolina School of Science and Mathematics are finding ways to demonstrate, through the School's special focus on science and mathematics, the interrelationships of all learning and the transferability and unique value of such skills as analysis, synthesis, listening, observing, recording, and simulating. The view of the universe found through each academic discipline will be studied, respected and integrated with special reference to the universe as perceived and revealed through the sciences.

Through the non-verbal approach of the arts and of human relations, as explored through the residential program, the School seeks to help students develop an enriched sensitivity to their personal feelings, their natural environment and the human community.

Cecily Cannan Selby, Ph.D.
Dean for Academic Affairs
October, 1980

North Carolina School of Science and Mathematics

SAMPLE COMMENTS FROM STUDENT EVALUATIONS

"J. brings a wealth of applied physics background to class and is usually quite willing to add some pertinent comments to the class material. This year he will be developing a more formalized view of physics which should let him see much of his past work in a more coherent way. I hope that he will be able to reinforce his intuitive knowledge with solid mathematical reasoning."

"K. is learning many of the ideas presented in chemistry but may be having some difficulty with some of the quantitative aspects. She needs to identify these and make a special effort to master them in subsequent chapters."

"D. is an exceptional person on his way to becoming an exceptional student. After a disappointing (to him and to me) performance on his first major test (though it was comparable with many of his classmates) D. wrote an essay analyzing why he had not done so well as he thought he should have done which had as its major theme the importance of mastering boredom. This is an important insight and if it leads to actualizing his intention is far more important than a test. Lessons of character are more difficult to learn than lessons of intellect. D. has taken an important step in learning one of these lessons."

"M. did not make a promising beginning in Latin, although I am convinced that he has the makings of a competent Latin student. It is also in his favor that he is communicative about his problems and willing to come for conference help. At this point he needs to concentrate on his "memory bank" of endings and vocabulary."

"J. prefers to pretend that mathematics is not an area of strength, but his work, both oral and written, speaks otherwise. His organization and self-discipline combined with his ability enable him to understand difficult material and to master the details essential for success. He sets high standards for himself (not always openly admitted) and works hard to achieve his goals. Socially, he has made a smooth adjustment and seems to enjoy both the learning and social sides of NCSSM."

"It appears that adjustment to residential life was easy for C. He has displayed the use of good judgment in setting his priorities and has used his time wisely. He seems to have established a number of friends and has demonstrated leadership. He has shown initiative in assuming responsibility and is very industrious. This is evidenced by his active participation within the intramural football program, outstanding work service program performance as a purchasing office aide, and, his versatility. I believe that C. exerts a degree of positiveness about himself and his endeavors unto fellow residents, staff and faculty."

Appendix C

Duke University
DURHAM
NORTH CAROLINA
27706

TRINITY COLLEGE OF ARTS AND SCIENCES
OFFICE OF THE ASSISTANT DEAN

REPORT ON THE LUNCHEON MEETING BETWEEN THE DUKE COMMITTEE TO ASSIST STUDENTS AT THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS AND THE DEAN AND FACULTY OF THE SCHOOL OF SCIENCE AND MATHEMATICS OCTOBER 29, 1980

Members present: Committee: Professors White, Chairman; Bonk; Phelps; Witt; O'Rand; and Ms. Hanks. SSM faculty: Dean Selby; Professors Davis; Baker; Owens; Houpe; Wilson

After introductions were made all around, Dr. Baker (Biology) began by explaining that the School intended to teach AP Biology and that the students needed some kind of research. She mentioned auxin experiments as an example.

Dr. Wilson (History) said that the students are doing American Studies. Speakers for their Wednesday night program would be helpful. Special programs in areas other than American history would be fine. Dr. Wilson mentioned areas such as Latin America, Canadian studies, NATO or related topics from any of the social sciences. She said that the mock trials put on by the law school might be useful. Dr. White noted that Dr. Salinger has an outreach program that might be available.

Dr. Davis (Math and Computer Science) said that guest speakers would be helpful to him, too. He said that access to a 5100 would be good, as would access to any other systems available at Duke. He said that they could offer a paid personal service contract to a graduate student for maintenance and assistance with their students. He also mentioned interest in buying kits for such things as simple robots because the students are interested in hardware. Mainly, Dr. Davis said he needs contacts. He asked for a contact person in Math and Computers for expert advice about both students and equipment.

Dr. Owens (Chemistry) said that his needs are mostly for chemistry and physics lab space. Dr. Selby noted that at this time the school has no chemistry or physics laboratory equipment and no library. Dr. Bonk said that he could provide laboratory space for as many as 120 students on MWF mornings and that he has one room for 24 people but not much equipment in it. Dr. White suggested that we might work out a van-pool on a short term basis. He added, in response to Dr. Baker's inquiry, that he could certainly do a phytotron tour. In addition, Dr. White said that he could provide space for plant propogation experiments and that that might be a good way to landscape the grounds at the SSM.

Dr. Houpe (Languages) asked for contacts for cultural enrichment, exposure to foreign language library materials and exposure to language labs. Dr. Phelps indicated that this would be possible. He added that they now have a language/computer project in introductory German that might be helpful. In addition, the feature film library might be made available.

Dr. White requested that faculty send us their requests in written form. Replies from the survey conducted at Duke and the faculty requests from the SSM will be discussed at the November 12 meeting of the Duke Committee. Contacts made at the luncheon will be followed up by the parties involved.

Dr. Selby discussed the students' scheduling and noted that while individual student schedules varied widely, Wednesday afternoons are generally free, some Friday afternoons are free and Saturday mornings are also good. Dr. Baker offered to coordinate transportation and to keep records of which students are participating

Dr. Selby led a brief, general discussion of the need to improve the teaching of science in the public schools.

The meeting was adjourned at 1:45 P.M.

Respectfully submitted,

Shirley Hanks

Note: The Duke committee will meet on November 12 at 12:45 P.M in room 140 Bio Sci.

cc: Dean Ernestine Friedl

NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

Appendix D

MEMORANDUM

TO: All Students

FROM: Dean Cecily C. Selby, Academic Affairs

DATE: November 4, 1980

RE: Program for Saturday mornings, November 8, November 22 and December 8

Please indicate, on the form below, your first, second and third choice of activity for the above three Saturdays. Indicate by writing 1, 2 or 3 next to the activity you choose. Please return this form to your Resident Advisor no later than Wednesday, November 5. Those in chorus and wind ensemble are permitted by Mr. Foy to elect just one of these activities. Enrollments are limited in each session. Please make suggestions for comparable programs to be offered in January.

	9:00-10:30 a.m.			10:30-12 noon	
	PROGRAM	TEACHER		PROGRAM	TEACHER
____	Chorus	Foy	____	Wind Ensemble	Foy
____	Study Skills/ Time Management	Bodenhorn	____	Study Skills/ Time Management	Bodenhorn
____	Study Skills/ Reading	Landolfe	____	Study Skills/ Reading	Landolfe
____	Laboratory in the History of Math*	Eilber	____	Laboratory in the History of Math*	Eilber
____	Linguistics**	Houpe	____	Linguistics**	Houpe
____	Calligraphy	Liles	____	Mechanical Drawing	Liles
____	Seminar: Introduction to Philosophy	Gauthier	____	Seminar: Introduction to Philosophy	Gauthier
____	Seminar: Chemistry-The Socio-Psychology of Atoms	McCloud	____	Seminar: Chemistry- The Socio-Psychology of Atoms	McCloud
____	Dance	Shabazz	____	Dance	Shabazz
			____	Independent Study in Math and Computers	Davis

* a "hands on" experience in problem-solving techniques using artifacts, games and other ancient devices

** an introduction to the study of the nature and structure of human speech

NAME ______________________

THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS

December 5, 1980

TO: Charles Eilber, Director

FROM: Michael E. Collins, Dean
Student Personnel Services

SUBJECT: Report and Recommendations: Student Personnel Services

This quarterly report is written with pleasure, as it reflects the successful beginning of a unique school. The commitment and hard work demonstrated throughout last year and the past summer by many individuals within and outside the school contributed to a spirit that would be hard to match. As was the case during the initial process of admission of our students, many people disregarded the boundaries of their specific positions here at school to assist in every way to guarantee the opening and the smooth operation of the first three months. To see the willingness of our staff and faculty to assemble student beds, cut lawns, serve food, meet and reassure students and parents, while assisting with the unloading of belongings from family cars, was most inspiring. Further, the support of the staff and faculty toward the many programs and student functions, so necessary to provide a well-rounded life here, has been gratifying to the students. This has been a main factor in the overall adjustment and retention of the students who entered September 7th.

Finally, without the spirit of adventure, capacity for hard work and great humor demonstrated by our students, the opening of school and subsequent early months would not have been so successful. In fact, many persons have expressed amazement at how,in such a short time, students could identify so emphatically with any institution as our students do with their school. They were ready for the challenge!

1. RECENT AND CURRENT ACTIVITIES

1.1 Residence Life Program

The Residence Life program under the leadership of Kathleen Benzaquin, has played an integral role in the success of the School to this point. The live-in staff has worked very hard to meet the needs of the students and to provide a "home away from home" atmosphere in the residence halls. A number of service programs have been implemented over the past term to aid students through this transition period. The staff as a whole are constantly evaluating policies and procedures as well as trying to determine what factors could be introduced into the program to make it better.

While there is still some construction-type work to be finished in the residence halls, most work has been completed. Installation of a master key system and the development of acoustical devices to soundproof main areas of Wyche and Hill Houses remain to be done.

Student assistants are actively involved as receptionists and as members of housekeeping crews. Quiet hours are enforced by the dorm assistants.

The resident advisor staff has been the key to the success of the residential program. Each advisor has accepted the role of counselor and often helps individual students through periods of strife. Each works with approximately twenty-two students which includes providing written evaluations of their students' adjustment to this setting.

Each resident advisor is responsible for program development and implementation. Currently underway are: Community Service, which involves approximately three hours each week per student in some type of volunteer capacity, Work Service, which involves up to five hours each week per student on campus, Student Activities, which is funded entirely by parent contributions and which provides a varied social/cultural experience for our students, and a Physical Activities/Wellness program which involves instruction in sports, lectures about nutrition and general health, and an individualized fitness program. An Intramural Athletic program has provided many of our students with competitive events in football, volleyball, cross-country track, tennis and basketball. Some students competed in events with other schools or in a Durham City recreation league. Clubs and Publications, another offering of the residential program, provides many students with varied experiences in outdoor activities, chess, computers, newspaper and yearbook, science fiction and a host of other activities of interest to many or just a few students. A student government (forum) has been planned and is currently being implemented under the co-sponsorship of a resident advisor and faculty member.

Other services provided through the residential programs include small group meetings in residence halls to assist students to better adapt to the challenge and stresses of communal living, a Host Family program which, when fully implemented, will match area families with students who have requested such an affiliation, and a Student-Sponsor program which provides close student-adult (faculty/staff) contacts to insure that students' personal/social needs are addressed.

1.2 Guidance and Counseling

The guidance and counseling program, very ably carried out by Rena Lindstrom, involves three main areas: Counseling, Testing, and College Advising.

The counseling function encompasses areas of student personal needs such as continuing short-term school adjustment, individual personal growth assistance, and small group "growth"- oriented counseling. In addition, academic counseling is a significant need of our students particularly with students enrolling at the NCSSM from so many varied educational backgrounds. Student/teacher/counselor conferences are held to maximize adjustment in addition to special assistance with concerns of text anxiety, time management, and stress management. There is referral assistance with community mental health services, and currently a few students are involved in off-campus counseling/therapy.

A recent development that ties counseling and the instructional program is the formation of a Student Review Committee. Composed of the Deans for Academic Affairs, Student Services and the guidance counselor, this committee meets regularly to review student problems and develop helping strategies.

Testing coordination for various programs such as the North Carolina Competency Test and the National Merit Scholarship Qualifying Test is the responsibility of the guidance counselor. With the implementation of the college advising program, students will need to be assisted with tests appropriate for college entrance. All students passed the Competency Test. Nearly all students participated in the National Merit program.

With the advent of second semester, the college advising pace quickens. The guidance counselor has established hundreds of contacts with colleges and universities. A college advisory committee has been formed on campus to assist in developing the best procedures to advise students of the goal toward making the best possible placement decision. Rena Lindstrom will begin a well-designed college/career program this month. Much is to be done in this area, when one considers the long-distance parental contacts that become integral to successful college placement, in addition to the many decisions inherent in selecting the universities or colleges best suited for each student.

1.3 Health Services

The North Carolina School of Science and Mathematics has enjoyed a working relationship with the Duke University Student Health Services. A cost-effective decision, using Duke's student clinic and infirmary has provided space for a few additional students to enroll and reduced the need to employ on-campus health professionals for 1980-81. Dr. John Nowlin serves as director of student health services and provides an on-campus clinic five days each week for approximately one hour each day. Students who require treatment at other hours, go to the clinic and/or infirmary. Some student injuries have also required emergency hospital care.

1.4 Admissions

The admissions effort is now in full operation as we set to attract a second class of 150 highly motivated students with intense interests and high ability in science and mathematics. Ola Stringer is again providing the admissions leadership as various members of the school's staff visit all regions of the state to acquaint students and others of this unique opportunity. Special recruiting attention is being given to schools which did not provide nominees in 1979-80, many in rural or border areas of North Carolina.

The present group of students is a diversified one, composed of 148 students from throughout the state. This pioneer class is 50% female and 50% male, representing 63 counties, 100 public schools and 4 private schools within N.C.

Since September 7, three students have elected to leave the school. The first a female, left after four weeks and was replaced by an alternate who has adapt well to the challenges of the program. Since then, two other students left, o at the end of nine weeks, and the other at the completion of eleven weeks.

Admissions criteria and procedures for selection for the 1981-82 school year are basically the same as last year. A major difference will be the number of nominees to be interviewed. Unlike last year when all nominees were interviewed, a pre-screening of all nominees will be conducted, bringing the total number to be interviewed to approximately 300.

A detailed report by the Admissions Office is available upon request for those who desire more specific information.

1.5 Safety and Security
With a full-time staff of four security advisors, including the supervisor, Kenneth Horne, the school is given twenty-four-hour-a-day safety/security coverage. Each advisor works a twelve-hour shift and has been responsible for patrolling the entire premises as well as providing additional services such as transportation of students for medical purposes.

Since September 1 through November 15, there have been 31 investigations made including larcenies (16), personal injuries (5) and trespassers (2). Stolen property with a total value of $1,585.00, included bicycles and other assorted materials. Some recovery of items was made.

The safety/security staff has assisted with developing a comprehensive fire safety program, including drills and alarm/smoke detector installation. A fire safety demonstration was held in October for all students and staff.

2. PROJECTED ACTIVITIES

2.1 Evaluation of Programs
Evaluation of programs will begin January, 1981. Some evaluation is now underway through the committee assignments made under the direction of Charles Eilber.

2.2 Student Evaluation Project
Plans are now being developed to assess the effect enrollment at the NCSSM has had and will continue to have on our students. This project is part of a larger research and evaluation endeavor being considered for the NCSSM.

2.3 Development of Personnel Needs
Screening current staff and developing personnel needs for 1981-82 based on a 300 student enrollment is projected for January, 1981. When approval is given for personnel additions, a systematic employment procedure will begin.

2.4 Agreement with Duke Student Health Services for 1981-82 health services will be sought.

2.5 Furnishings for residence halls will be ordered for 1981-82.

3. ANTICIPATED NEEDS OR ISSUES

3.1 Transportation for students must be reviewed within the context of developing instructional and community programs. Matching transportation availability with program needs will be a critical issue.

3.2 Construction/Renovation of student living space must begin soon to assure adequate lead time for school opening September, 1981.

3.3 Athletic demands are to be greater with a 300 student enrollment. Prompt negotiations with area schools and community centers to accomodate increased student participation is necessary and will begin.

3.4 Additional professional custodial help is needed to provide daily assistance in the student living areas, and to provide supervision of students involved in housekeeping duties as part of Work Service.

North Carolina School of Science and Mathematics

December 5, 1980

MEMORANDUM

TO: Charles R. Eilber, Director

FROM: Borden Mace, Dean for Operations and Institutional Advancement

SUBJECT: Report and Recommendations - Quarter Ending December 31, 1980

1. RECENT AND CURRENT ACTIVITIES

1.1 Financial Statement as of November 30, 1980 attached.

1.2 New freezer, ice machine, grills and hot plates installed in cafeteria. Dining areas painted.

1.3 Four mini-computers and four interactive tele links to Triangle University Computation Center installed in campus computer center.

1.4 Air-Sac Inflated Dome installed over swimming pool.

1.5 Librarian office and processing room completed. Carpet installed in library.

1.6 Complete and mobile audio-visual systems on two carts, including motion picture, film strip, and video equipment for classroom and laboratory use, placed in Hill House.

1.7 Four station student photographic dark-room laboratory completed by Joe Liles and students on 3rd floor North Wing.

1.8 Kiln and Pottery equipment currently being installed.

1.9 8 inch Celestron telescope with observatory and dark room being donated to School by Mr. Allen Clark of Pinehurst, N. C. It will be installed early next year on roof of Main Building as soon as a vibration dampening system "sand base" is prepared.

1.10 Three new Yamaha practice pianos and 55 music stands added to Steinway Grand purchased by Fund for Music Department.

1.11 Outside parking areas, School signs, and trim on residential halls painted.

1.12 Temporary biology laboratory installed.

1.13 Physics laboratory with new tables and electrical outlets prepared.

1.14 Recycled chemistry laboratory and classroom near completion.

1.15 Assembly Hall and adjacent Courtyard to be ready for Christmas concert on December 18, 1980.

1.16 Fund raising, public relations, receptions, issuance of "DIALOGUES" newsletter, and other activities connected with institutional advancement.

1.17 Budget, accounting, and management for school including food service, plant and ground maintenance, contract supervision and long range planning.

2. PROJECTED ACTIVITY

2.1 Procurement of additional educational and recreational equipment, books and supplies.

2.2 Plans and services for Summer Workshops and ongoing outreach programs.

2.3 Plans for research and evaluation.

2.4 Liasion with Advisory Budget Commission and General Assembly from now through June 1981.

3. ANTICIPATED NEEDS OR ISSUES

3.1 Long range needs as reflected in Master Plan.

4. RECOMMENDATIONS

4.1 Immediate initiation of research, evaluation and dissemination effort with both in-house and outside components. The question remains as to whether the independent Learning Institute of North Carolina with its good reputation with foundations should be reactivated for the outside research and evaluation component of the total program.

The North Carolina School of Science and Mathematics
State Budget for Fiscal Year Ending June 30, 1980
As of November 30, 1980

ject	Description	Budget	Expenditures & Encumbrances As of 11/30/80	Unencumbered Balance As of 11/30/80
11	SPA Salaries	569,988	200,395	369,593
70	Longevity Pay	1,129	1,828	(699)
81	SPA Salary Reserve	8,956	-	8,956
	SPA Teaching Salaries	271,569	79,404	192,165
92	SPA Teaching Additive	15,400	4,739	10,661
93	SPA Teaching Supplement	35,700	10,609	25,091
10	Social Security Contr.	54,729	17,671	37,058
20	Retirement Contribution	84,898	28,458	56,440
0	Hospitalization Ins.	21,403	4,476	16,927
89	Employee Housing Allow.	4,334	4,000	334
20	Consultant Fees	48,501	46,000	2,501
30	Medical Fees	25,000	17,525	7,475
40	Payments-Emp.Loan	2,336	2,198	138
50	Honorariums	1,000	-	1,000
90	Other Contracted Serv.	48,738	38,309	10,429
	Total Personal Services	1,193,681	455,612	738,069
100	Household Cloth.Supply	-	-	-
110	Janitorial Supplies	5,000	5,584	(584)
2130	Clothing,Uniforms(secur)	700	698	2
2300	Ed,Med&Agric.Supplies	28,700	28,642	58
2400	Repair&Constr.Supplies	7,500	10,088	(2588)
2500	Vehicle Operating Suppl.	3,300	1,508	1,792
600	Office Mat&Supplies	12,200	12,139	61
900	Other Mat& Supplies	1,500	1,074	426
	Total Supplies& Material	58,900	59,733	(833)
110	Travel	37,987	11,492	26,495
120	Travel/per diem Bd.Memb.	9,000	3,455	5,545
210	Telephone	27,500	21,735	5,765
250	Postage	6,000	3,006	2,994
00	Utilities	100,000	16,990	83,010
330	Fuel Oil	66,500	-	66,500
410	Printing	10,000	5,194	4,806
420	Reproduction Cost .	5,000	264	4,736
3500	Repairs& Maintenance	50,000	45,975	4,025
00	Freight,Express,Delivery	13	13	-
00	Advertising	4,500	710	3,790
10	Data Processing Serv.	1,500	-	1,500
40	Janitorial Service	19,000	13,960	5,040
70	Seminars	7,500	545	6,955
81	Institutional Serv.(Food)	150,000	127,295	22,705
82	Other Serv.(Laundry)	6,000	1,855	4,145
99	Miscellaneous Service	12,450	7,862	5,588
	Total Operating Cost	513,950	260,351	253,599

The North Carolina School of Science and Mathematics
State Budget for Fiscal Year Ending June 30, 1980 (continued)
As of November 30, 1980

Object	Description	Budget	Expenditures & Encumbrances as of 11/30/80	Unencumbered Balance as of 11/30/80
4100	Rental of Real Property	2,100	2,010	90
4200	Rental DP Equip&Software	6,000	5,840	160
4300	Rental of other equip.	21,068	9,226	11,842
4400	Service/Maint Contract	6,000	5,010	990
4500	Insurance& Bonding	3,000	60	2,940
4910	Subscription&Dues	5,000	5,133	(133)
4960	Books&Publications	5,000	303	4,697
	Total Fixed Charges& Other expenses	48,168	27,582	20,586
5100	Office Furn.& Equip.	34,796	24,905	9,891
5300	Educ,Med,&Agric Equip.	127,719	68,239	59,480
5400	Vehicle Purchased	27,000	26,333	667
5500	Other Equipment	30,000	17,508	12,492
5600	Books	50,000	46,508	3,492
	Total Capital Outlay Other than Buildings	269,515	183,493	86,022
8149	Transfer to Code 47901	335,678	335,678	-
8390	Reserve for Contingency	28,160	11,700	16,460
	TOTAL EXPENDITURES	2,448,052	1,334,149	1,113,903
	REVENUES	119,083		119,083
		2,328,969	1,334,149	994,820

North Carolina School of Science and Mathematics

PROPOSAL FOR SUMMER WORKSHOPS
on
USES OF MICROCOMPUTERS IN THE TEACHING OF MATHEMATICS, SCIENCE AND COMPUTER PROGRAMMING

(An Introduction to Microcomputers for
North Carolina Teachers of Science and Mathematics)

Summer 1981

1. For a workshop for junior and senior high school teachers for the summer of 1981 the North Carolina School of Science and Mathematics has a ready-made potential in our use of micro-computers.

2. The program is directed at both senior high school teachers and junior high school teachers. Principals will be invited to join in a one day adjunct program at the end of each of the programs for the teachers.

3. The workshops will be intensive but fairly short, two weeks for a total of ten working days. There will be a minimum cost for the teachers. Room, linens, tuition and registration will be provided by the North Carolina School of Science and Mathematics. Meals will be charged for at cost ($3.50 per day) at NCSSM. Transportation to the workshops, and the cost of materials must be provided by the teachers, or their schools.

4. The workshops will be designed with cooperation of the Department of Public Instruction in order to make sure that the proper format and records are kept which will provide official certificate improvement credit. The possibility will be explored for a cooperative arrangement with one of the universities, the University of North Carolina-Chapel Hill, or North Carolina State, to award graduate credit. Teachers would pay any additional required tuition or fees associated with registering at the university and earning credit. This is not an essential part of our program but might be an extra benefit for those for whom graduate credit is desired.

5. Calendar --

Section I Emphasis on the Physical Sciences. Science and Mathematics Teachers of Grades 11, 12 (60 teachers)

Sunday, June 21	Opening Evening Session
Monday, June 22 - Friday, June 26	Workshop Sessions
Monday, June 29 - Friday, July 3	Workshop Sessions
Friday, July 3	Open House for Principals

Section II Emphasis on Natural Sciences. Science and Mathematics Teachers of Grades 7-10 (60 teachers)

Monday, July 6	Opening Evening Session
Tuesday, July 7 - Saturday, July 11	Workshop Sessions
Monday, July 13 - Friday, July 17	Workshop Sessions
Friday, July 17	Open House for Principals

6. Description of the Program

Each participant will receive an introduction to BASIC, use recently developed software designed for using a microcomputer as a tool in the laboratory and classroom, and use software designed to augment the mathematics curriculum.

The flexibility provided by a residential program will enable participants desiring indepth instruction to pursue a program of study sufficient to prepare them for the following: (a) teach an elementary course in computer programming, (b) use and test the software packages in their home school, and (c) participate in the design of software.

The workshop will assume no previous experience, but it will be flexible enough to provide someone with previous experience an opportunity to proceed at a faster pace. A typical day will involve classroom instruction in BASIC (especially emphasizing graphics in a non-technical approach), using a microcomputer in a science experiment, and open time to prepare programs and "explore" into the promise of microcomputers. The emphasis will be twofold -- an introduction to computer programming and the application of microcomputers into the existing curriculum. We wish to emphasize that the workshop can be used for either an introduction to the subject or for an indepth course in BASIC programming.

Apple microcomputers will be available 24 hours per day in classrooms within the same building as dormitory rooms. Guest lecturers, or field trips, using the resources of the Research Triangle Area will be included in the program.

7. Consideration will be given to a follow-up program during the school year to reinforce the summer experience and/or to assist participants in developing the use of microcomputers in their own schools. This might be accomplished by a teleconferencing network linking NCSSM with regional schools to which participants would travel.

8. Preference will be given to teachers from North Carolina schools. If space is available out-of-state teachers will be considered.

9. Approximate cost to teachers (or their school district): transportation, meals @ $3.50/day, and $75.00 for materials.

10. Budget

Two summer programs - 60 teacher participants each - Total 120

A. Direct Cash Outlays

Instructors	$12,000
Part-time Coordinator	2,000
Clerical	1,200
Consultants, special lectures	1,200
Group transportation	900
Materials, printing, postage, telephone	1,500
Complimentary luncheon, dinner, breakfast - one day (70 principals, 10 guests x 2 @ $3.50)	560
Classrooms, laboratories, residence halls, lounges and cafeteria cleaned, supplied with linens, etc.	1,800
Rental of additional computers, buses, etc.	1,500
Dorm Supervisor/Receptionists	1,000
Evening computer room aides	800
Contingency	1,000
TOTAL Cost of Two Summer Programs	$25,460

I request approval of the Board of Trustees to undertake such a program, and permission to solicit financial support from the Fund for the Advancement of Science and Mathematics Education in North Carolina from gifts given for such purposes and/or from unrestricted gifts.

Charles R. Eilber, Director
December 5, 1980

North Carolina School of Science and Mathematics

PROPOSAL FOR THE NORTH CAROLINA SCHOOL OF SCIENCE AND MATHEMATICS RESOURCE CENTER FOR THE IMPROVEMENT OF SCIENCE AND MATHEMATICS EDUCATION

In support of the founding goals of this school, so eloquently reinforced by recent reports from the National Science Foundation, White House reports, and a mushrooming of attention from both the popular and the professional press, we propose that the concept of this school be expanded to include a resource center for teachers and educators statewide and nationwide.

We believe this concept will help fulfill, for North Carolina, the goals summarized by the Planning Committee for the School "...the North Carolina School of Science and Mathematics should be established in such a way that, first, it retains sufficient autonomy to pursue innovative methods in providing appropriate instruction to children with unusually high aptitude for science and mathematics. Second, it should maintain relationships with the elementary and secondary education system of the State so that pioneering efforts of the School will prove beneficial to the entire system." *

Rationale for a Resource Center at NCSSM

1) The School as coordinator: The School enjoys close formal and informal relationships with the Department of Public Instruction, the Board of Science and Technology, the N. C. Academy of Science, the business community and neighboring public and private institutions of higher education. Outreach programs in cooperation with such affiliations can thus be readily structured both directly and indirectly, formally and informally, using the faculty, facilities (including residential) and equipment of the School.

2) The School as focus: The founding and operation of NCSSM has focused local, statewide and national attention on the School, the School is thus already a focus for correspondence and visits from those across the State and nation interested in, experienced with and concerned about, the improvement of science and math education.

3) The School as generator and evaluator of educational research: The experience of students and faculty within the School, as compared to control groups, will yield unique information about student needs and the effectiveness of NCSSM in addressing these needs, i.e., in "making a difference". The School offers an opportunity to evaluate instructional approaches developed in the resource center or elsewhere.

4) The School as catalyst: The School has an effect on the home school of students enrolled in it, on the schools with which teachers at the School have been affiliated and through contacts through the talent search.

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*Recommendations of the Planning Committee to the Governor. May 8, 1978, p. 13

It is to assist in these goals, without detracting from, but serving to strengthen, the operation of the School in the best interests of the students enrolled, that the proposal is made that a resource center is needed to work in the closest affiliation with the School but to serve goals beyond those of the School -- i.e., to serve all the students and the teachers in the state of North Carolina.

Goals in the Development of a Center Affiliated with NCSSM, are to provide:

1) Workshops for teachers, principals, and others conducted on the NCSSM campus, utilizing NCSSM residential facilities during the months of July and August.

   Suggested Topics:
   - Microcomputers (summer 1981, plans attached)
   - Interdisciplinary science teaching
   - Current trends in science, math and engineering
   - Techniques in independent study and individualized education
   - Art, music, humanities and writing related to science and mathematics

   Operation of these workshops should be in partnership with the Department of Public Instruction, NCSSM faculty, neighboring universities, and Research Triangle institutions.

2) Orientation and information program for teachers and educators who wish to visit the School. To avoid undue disruption of classes, exhibits, videotapes of classes and students interviews, assessment data, evaluations, and instructional programs will be made available in a space within the school complex. The resource center could be fashioned as a resource center on science, math and related teaching as well as a resource on the School, its history, its philosophy and its accomplishments to date.

3) Instructional design by NCSSM faculty with use of consultants. Affiliation with the most significant and creative research across the United States and North Carolina is recommended, as well as with NCSSM faculty curriculum committees. Workshops on curriculum development will be held on campus during the summer and coordinated with educational and communications technology. Input from internal program evaluation at NCSSM.

4) Design of models for community organization for science education for rural schools. Consultants in community organization and rural education should be invited to the center to design models in collaboration with NCSSM faculty and staff experienced in using community resources (such as scientists from industry) for the School. Affiliation with the Department of Public Instruction and the Board of Science and Technology.

5) Development of research program in teaching and learning theory, in student identification, in instructional design, and other related topics.

6) Leadership and coordination of opportunities for science and math faculty at NCSSM and neighboring high schools for paid research assistantships in laboratories during vacation and/or sabbatical years. Opportunities to teach part-time at NCSSM and to carry on research should be considered. Operation should be in collaboration with N. C. Academy of Science and student projects.

7) A program of evaluation of the effectiveness of the School program, and of other related programs.

8) Leadership and coordination of opportunities for qualified students of NCSSM and neighboring high schools to work as research assistants during the school year and/or during vacations in neighboring industrial and academic laboratories. This could be administered and directed in affiliation with the N. C. Academy of Science using the N. Y. Academy of Science as a model. There would be close collaboration with the NCSSM science faculty.

Summary

The faculty and staff of NCSSM, following a suggested outline provided by Dr. James Gallagher, determined the following goals for the School:

Goal	Program
I. Positive Impact on NCSSM Students	
a. Improved performance in science, mathematics and general scholarship.	Instructional and guidance program
b. Improved student ability to deal with complex issues interfacing social, political and technical areas.	Instructional and activities program
c. Influence career choice to higher levels particularly to scientific and mathematically related fields.	Guidance, mentor, seminar and other programs
d. Maximize educational impact through residential situtation.	Residential program
II. Improve Identification of Students with High Potential	Talent search through Admissions program and outreach
III. Improve Teaching of Science and Mathematics in N.C. Secondary Schools	NCSSM functioning as center for the improvement of science and math education

Currently there is no provision in the School's operating budget for staffing and office to handle any of the programs suggested under the above description of the proposed center, or to carry out program evaluation of the operating activities of the School. As stated by James Gallagher in

"Some Thoughts on Program Evaluation for NCSSM", "It is important that an experimental school such as NCSSM, develop a comprehensive and rational plan for evaluation from the beginning of its operation." The above proposal is designed to fulfill the requirements for such a total evaluation program but in addition, to provide for outreach, research and dissemination to help fulfill the School's mission within the total context of North Carolina education.

Cecily C. Selby, Dean for Academic Affairs
Charles R. Eilber, Director
December 5, 1980

North Carolina School of Science and Mathematics

RECOMMENDATION TO DEVELOP PLANS FOR A RESOURCE CENTER

At present some of the programs which will arise from implementation of the outreach goals of the School are begging to be started. For example, the time we lose each day from beginning a comprehensive research and evaluation program is irretrievable. It is essential to gather data early for eventual comparisons. However, the staff has such a huge job in merely operating the School program this year that there are simply no resources with which to do the planning necessary for a comprehensive approach to outreach, evaluation, research and dissemination. The plans presented for the Summer 1981 workshops on microcomputers were developed at the expense of time and energy which was needed elsewhere, and only because it is such an important project that a number of us "dropped everything" to develop the preliminary plans.

In order to move ahead with the concept of a resource center, I propose:

1. that between now and the March 6, 1981 meeting of the Board of Trustees, funds be made available to develop a comprehensive plan for such a center, and that the funds be used primarily to hire a temporary half-time assistant for Dean Selby. This staff member would relieve Dean Selby of some of the ongoing routine chores of administering the instructional program in order for the Dean to coordinate the development of a comprehensive plan for a resource center, including investigation of possible funding sources. The development of the plan would include the consideration of the need for some degree of independence from the School in evolving the evaluation and research components;

2. that a first draft of the plan be ready to be mailed to each member of the Board of Trustees by February 25, 1981 to prepare for discussion at the March 6 meeting; and

3. that salary costs of the assistant, along with some related planning costs in the amount of $4,500 for the period December 8, 1980 through April 8, 1981 be provided.

Therefore, I request that approval be granted by the Board of Trustees for the staff to develop a comprehensive plan for a resource center as a new division of the program of the School, and the Director be given permission to request financial support for such planning from the Fund for the Advancement of Science and Mathematics Education from gifts given for such purposes, and/or from unrestricted gifts.

Charles R. Eilber, Director
December 5, 1980

North Carolina School of Science and Mathematics

PROPOSAL FOR PROFESSIONAL IMPROVEMENT AND PROGRAM DEVELOPMENT GRANTS FOR NCSSM STAFF

The daily teaching and advising responsibilities of the professional staff of the School are heavy and time consuming, leaving little time for professional growth, or research, or program development within the academic year. A little of this has been done in staff workshops, and general meetings during the past summer, but this does not result in the indepth development of individual staff members essential to the evolution of the program of the School.

Members of this staff have the capabilities of making significant contributions to teaching and learning given the resources to develop those capabilities. I propose a program to award grants to staff members to enable them to undertake significant study, research, or program development during summers beginning in 1981.

The criteria for awarding a grant would dictate that the results would directly benefit the School through such things as development of instructional or counseling materials or innovative teaching/learning techniques, or research.

For 1981 I propose two grants of a maximum of $1,500 each to be awarded on the basis of applications submitted by interested staff members to an administrative selection committee. The application would include a budget proposal specifying the use of the funds. There would be no restriction on the manner in which funds were spent providing the expenditure contributed to the objective of the grant, and that any equipment purchased, or materials developed, became the property of the School. An accounting and a final report will be required.

Such a program would emphasize the commitment to excellence of teaching and learning that the School stands for.

I request approval to undertake such a program and permission to solicit financial support from the Fund for the Advancement of Science and Mathematics Education in North Carolina from gifts given for such purposes and/or from unrestricted gifts.

Charles R. Eilber, Director
December 5, 1980

North Carolina School of Science and Mathematics

PROPOSAL TO PROVIDE LIABILITY INSURANCE FOR TRUSTEES AND ADMINISTRATORS OF NCSSM

The North Carolina School of Science and Mathematics was established to be a pioneering institution "...with sufficient autonomy to pursue innovative methods in providing appropriate instruction..."*.

The Board of Trustees and the administration have maintained a sufficiency of autonomy in organizing the School, in setting policies, in selecting faculty and students, in planning curriculum, in procuring materials and books, as together they attempt to fulfill the purposes for which the School was founded.

But sometimes being a pioneer involves risks, and we have not been able to clearly identify what possible legal liabilities the Board members or the administrators might be faced with during the evolution of a program dedicated to higher than usual standards of quality.

An earlier inquiry to the Attorney General elicited the reply that certain legal protection is not absolute and can be lost (see attached letter).

To provide every possible protection for members of the Board of Trustees and the Director and Deans of the School, I request permission to explore various types of liability insurance and to procure insurance appropriate to the responsibilities of the Board and administration as a group and as individuals.

Charles R. Eilber, Director
December 5, 1980

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*Recommendations of the Planning Committee to the Governor. May 8, 1978, p. 13.

RECEIVED
AUG [illegible] 1979
N.C. School of
Science & Mathematics

State of North Carolina
Department of Justice
P. O. Box 629
Raleigh
27602

RUFUS L. EDMISTEN
ATTORNEY GENERAL

15 August 1979

Mr. Borden Mace
The North Carolina School
of Science and Mathematics
West Club Boulevard & Broad Street
Durham, North Carolina 27705

Dear Mr. Mace:

I write in response to your letter of August 14, 1979 to Mr. Edwin M. Speas, Jr. concerning the possibility of personal liability of officers and trustees of the North Carolina School of Science and Mathematics.

The answer to your question is governed generally by the United States Supreme Court decision in WOOD v. STRICKLAND. The Court recognized a qualified immunity from personal liability running to public officials who were acting within the scope of their duty or authority. The immunity, however, was not absolute. It would be lost if the official took action (or refused to take action) that he knew or reasonably should have known would violate the constitutional rights of the person affected or if he took the action (or refused to take action) with the malicious intent of causing a deprivation of constitutional rights or other injury to the person affected.

To state this principle in reverse: If the official acts in good faith and not in disregard of established constitutional rights, he will be protected from liability by the qualified immunity principle. We repeat, however, that the immunity is not absolute and can be lost.

We hope this has answered your question. Please let me know if further information or clarification is needed.

Very truly yours,

RUFUS L. EDMISTEN
Attorney General

Elizabeth C. Bunting
Assistant Attorney General

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